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Descriptions of New Genera and Species of the Dipterous Family Ephyridae.—I.

By E. T. CRESSON, JR., Academy of Natural Sciences, Philadelphia, Pa.

(Plate X)

In working over some material in preparation of monographic reviews of the members of this family, many new and interesting species were found. Some of these represent new genera which, as well as some of the most interesting species, will be described in preliminary papers of which this is the first.

CEROMETOPUM gen. nov.

Suggesting *Mosillus* Latr. in general form, but differing mostly in the structure of the face and in the pectination of the arista. The frontal bristles are well developed, which is not the case with that genus. The face is not deeply excavated beneath the antennae and with no indication of a tuber-

cle in the middle, but is evenly convex, excepting the shallow antennal depression, and entirely transversely wrinkled. From this diagnosis there will be no difficulty in distinguishing the species of this genus. As *Mosillus* is not apparently represented in South America, this genus probably takes its place there. It may be characterized as follows:

Similar to *Mosillus* Latr. in general build. Head (Pl. X, figure 3) as broad as high; eyes large, elliptical, not prominent. Front broader with orbits parallel, smooth except for small distinct pits; besides the usual vertical and ocellar bristles there is a pro- and a reclinate orbital present. Face gently convex, retreating, depressed at antennae; except directly beneath antennae, strongly transversely sulcate, the sulci somewhat tortuous laterally, the elevations interrupted by the suggestion of orbital grooves, the entire face appearing somewhat honey-combed under moderate magnification; facial bristles hair-like, numerous, situated in a pit in each sulcus in position to corresponding with the orbital groove. Clypeus quadrate, very prominent, usually deflexed. Proboscis and palpi small. Antennae very short, third joint quadrate, second weakly spinose, arista distinctly pectinate above. Thorax quadrate, with 1 prescutellar near roots of scutellum, 1-2 postalar, 2 notopleurals, 1 humeral, all weak. Scutellum broad, broadly rounded apically, with 4 marginal bristles. Abdomen ovate in both sexes; genitalia inconspicuous. Legs robust; anterior femora finely ciliate beneath apically, but no spines or bristles.

Genotype.—*Cerometopum mosilloides* n. sp.

Cerometopum mosilloides n. sp. (Plate X, fig. 3).

Entirely black, except palpi white or yellowish, all tarsi except apically, apex of middle and hind femora and their tibiae, entirely yellow; all tibiae silvery outside; anterior tibiae brown. Wings luteous, with yellow veins, but costa darker.

Front shining, with no differentiated areas, but with distinct spherical pits as follows: A pair behind and a pair before the line of anterior ocellus and near anterior margin of front. Face shining, with greenish metallic reflections. Cheeks one-half eye-height with weak bristle. Antennae about one-sixth as long as face, third joint nearly

round, arista with five hairs. Mesonotum opaque with greenish gray granular pollinose vestiture and three narrow brown vittae medianly which do not attain posterior margin. Scutellum flattened, of like color and surface. Pleurae except mesopleura polished. Abdomen polished, with slight greenish tinge. Femora polished. Length, 3.0 to 3.5 mm.

♂, Fourth abdominal segment equalling 2 and 3 together, fifth and second subequal.

Holotype.—♂ Baranquilla, Colombia. Collected March, 1912 (Ujhelyi), in the Hungarian National Museum Collection.

Paratypes.—Paraguay: San Bernardino (7, Barbarczy, Feb.-Mar., 1906), Puerto Max, (1, Vezenyi, Jan.-Apr., 1905).

PSILEPHYDRA Hendel.¹

A species was recognized from Costa Rica as belonging to a new genus, and I had drawn up a description of it as such when the *Supplementa Entomologica* came to hand. Hendel's new genus, erected for a species found in Formosa, was at once recognized as being similar to, if not identical with, my new one. The drawing had been made and engraved, or I would have given figures of characters of more specific importance. In addition to the form of the head, there are other essential characters which make it very probable that the Costa Rican species belongs to this genus. It is extremely interesting that species from so widely separated localities should be discovered about the same time belonging to the same and a new genus. The following notes are based on the examination of the Costa Rican specimens only.

This genus may be distinguished by the peculiar shield-like development of the face which extends rather low, appearing somewhat subhemispherical, being evenly and distinctly convex in all directions, including the cheeks. There are no indications of the usual parafacial grooves or areas, and the face is destitute of characteristic bristles or hairs. In general the face appears vaulted or arched, as is typical with *Ephydra* and *Parydra*, but the mouth is not proportionately so large.

¹Supplementa Entomologica No. III, p. 99, 1914.

At the first glance its head suggests affinity to *Ilythea*, but on further examination it is seen to belong to an entirely different subfamily. The form of the head, thorax and abdomen, and its chaetotaxy determines its relation to *Hydrina* and *Axysta*. The abdomen suggests *Gastrops*, having apparently only four segments in the male and five in the female with the second and third much longer than the others. The apical margin of the third, in profile, is horizontal as in *Lytogaster* and *Axysta*.

Psilephydra nemorosa n. sp. (Plate X, fig. 4).

Entirely shining black with faint submetallic lustre, or somewhat obscured by the sparse brown pollen and the granular or scrobiculated surface, especially of thorax and scutellum. Face greenish bronze (to whitish in immature specimens), appearing golden from the dense yellowish microscopic pubescence. Halteres black. Legs black with trochanters, apices and bases of tibiae and all tarsi except apices, yellowish. Wings brown hyaline, immaculate.

Vertex smooth, twice or more times as broad as length of front; frontal orbits converging anteriorly. Face one-half as broad as vertex, nearly three times as long as broad, evenly clothed with scattered hairs and dense pubescence. Cheeks as broad as eye-height, without bristle. Antennae with second and third joints subequal, together somewhat globose; arista as long as width of vertex, thickened at extreme base, microscopically plumose.

Mesonotum and scutellum minutely scrobiculate or granulate. Pleurae and abdomen more shining; segment 2 equals 2×1 , 3 equals 1.5×2 , 4 equals 1. Ventral lobes of dorsal plates nearly contiguous.

Legs with no apparent characteristic bristles. Apical joint of fore tarsi δ dilated, with an apical fan of eight or more long hairs, their claws long and stout, so spread laterally as to diametrically oppose each other, their pulvilli also enlarged. Wings with vein 2 as long as ultimate section of 3; 2, 3 and 4 straight, parallel; 5 sinuate; posterior cross vein three times penultimate section of 4. Length 1.5 mm.

Holotype.— δ , Juan Viñas, Costa Rica. Collected May 1, 1910, 4 p. m., (P. P. Calvert) at a forest brook, 2500 feet altitude. No. 6065. Academy of Natural Sciences of Philadelphia.

Paratypes.—2 ♀ 2 ♂ with same data; 1 male, Rio Siquiaries, Turrucares, Costa Rica.²

²Notes on the Costa Rican localities cited in this paper will be found in Transactions, Amer. Ent. Soc., xl, pp. 1-8, 1914.

This species should not be confused with the *Formosa* species (*P. cyanoprosofa* Hend.) on account of the black halteres and the structure of the fore tarsi of the male, as well as other characters which may be gleaned from the full description given above.

PLANINASUS new genus.

The position of this genus is doubtful. It evidently is not a typical Ephydrid, although superficially resembling some of the genera allied to *Ephydra*. The preapical tibial bristles are well developed as well as the second basal and anal cells. The dorsocentral bristles are in the same series as the prescutellars, and there are two distinct sternopleural bristles. It is probably to a genus belonging to an independent line originating from the common ancestor of the Ephydridae and Drosophilidae. The genus may be characterized as follows:

Head (Pl. X, figures 5-6) higher than long, broader than high. Eyes nearly as high as head, oblique, bare, not protruding. Occiput concave above, vertex sharp and concave. Front broader at antennae than at vertex; ocellar tubercle small, near occiput; inner and outer verticals present, no ocellars or post-verticals, 1 latero-reclinate and 1 mesally inclined orbitals with their bases close and situated opposite anterior ocellus. Antennae widely separated by an oblique flattened area limited above by the transversely straight lunular ridge and extending to near middle of face. Face broad with lower part vertical, transversely convex, with strong bristles in transverse series near oral margin. Antennal foveae apparent, with parafacial groove running close to orbits. Mouth large, as broad as face above; clypeus retracted. Antennae (as in figure 7) so articulated at first joint that the inner surface of the second is turned obliquely forward.

Thorax longer than broad, obliquely as high with sternopleura well developed. One dorsocentral at suture with few setulae anteriorly, 1 pair of widely separated prescutellars in same series as dorsocentrals, 1 post-, 1 supra-alar, 2 notopleurals, 1 or more mesopleurals, 2 sternopleurals, 2 scutellars. Abdomen ovate narrower than thorax.

Legs normal: fore coxae short, far from attaining base of middle pair; preapical bristles on all tibiae. Claws small curved; pulvilli present. Wings elongate with costa unbroken attaining the fourth vein but with small bristles at end of first; auxiliary vein coalescing apically with first; second basal and anal cells distinct, the latter small rounded apically.

Genotype.—*Planinasus ambiguus* n. sp.

***Planinasus ambiguus* n. sp.** (Plate X, figs. 5-7).

Shining black; lunule area, halteres, coxae, basal half or two-thirds of all femora, bases of fore and hind tarsi, yellow; lower two-thirds of oblique plate metallic-tinged; lower face seen from above densely metallic pale green, becoming opaque black or brown in other aspects; lower angles of front velvety black. Mesonotum and scutellum sparsely yellow pruinose; pleura paler more opaque than mesonotum. Wings brownish, immaculate; veins black. All macrochaetae strong and black.

Front twice as broad as long, with two reclinate bristles on lunule margin. Face two-thirds as broad as vertex with vertical part one-third the height of head; oblique plate half the width of face, longer than broad, with two long upcurved converging bristles on lower margin; lower face with four erect bristles in transverse series near oral margin, a lateral series of two down-curved hairs near lower orbits, and a pair of erect bristles in a vertical series above the outermost bristles of transverse series. Cheeks very narrow. Antennae as in Figure 7.

Abdomen (partly concealed by the somewhat mutilated wings) appears grayish, opaque becoming shining apically. Hypopygium complicated. Fore femora with 1-2 long bristles on lateral flexor margin apically. Wings with second costal section twice as long as third; veins 2, 3, 4 straight, parallel. Length 3.0 mm.

Holotype.—♂, Cachi, Costa Rica, Valley of Rio Naranjo. Collected March 9, 1910, by Dr. P. P. Calvert. In collection at Academy of Natural Sciences, Philadelphia, No. 6069.

***Philygria basalis* n. sp.** (Plate X, fig. 1).

Opaque with apex of abdomen polished. Black, with face, third antennal joint inferiorly, tarsi and tibiae in part, yellow. Halteres white, knob with blackish spot. Head and thorax cinereous with brown markings. Abdomen with opaque white spots and bands. Wings hyaline with basal infuscation as in Figure 1.

Arista with long hairs above; mesonotum with two dorso-central bristles.

Front with a large deltoid mark laterad of antennae, a round dot below anterior ocellus and a dot at base of vertical bristles, black, leaving narrow orbits and oblique stripe from vertical angles to antennae cinereous; narrow facial and buccal orbits silvery white, complete parafacial groove narrowly brown; median area yellowish white pruinose. Occiput black below. Antennae brown except inferior half of third joint.

Mesonotum with five brown vittae; pleura sparsely cinereous above, with brown stripe across mesopleura. Scutellum brown. Abdomen with segments 1 to 3 sparsely brown pruinose; apices of 2 to 3 margined with silver, broadly interrupted medianly; segments 4 to 5 polished, former with four, latter with three, submarginal silvery dots; all segments with lateral margins narrowly silvery. Femora black, apices yellow; fore tibiae entirely, apices and bases of middle and hind tibiae and median ring on latter yellow; apices of tarsi black.

Front hardly twice as broad as long; orbits nearly parallel. Face abruptly narrowed to about width of third antennal joint, with orbits parallel for short distance then broadening into cheeks; but little depressed below antennae and in profile obliquely protruding below, the prominence shining with convex margin; parafacial grooves above close and parallel, separated by an equally narrow yellow stripe which broadens below into the protruding median area; bristles hair-like. Cheeks hardly as broad as third antennal joint. Latter subconical with upper margin straight; arista hardly half as long as third, with 9-10 hairs.

Dorso-central and intra-alar setulae discernible. Chaetotaxy as in *P. calverti*. Scutellum broad, flat, apex truncate. Venation as in Figure 1. Length 1.5 mm.

Holotype.—♀ Tucuman, Argentina (Vezenyi). Collection of Hungarian National Museum.

Paratype.—1 ♀ Asuncion, Paraguay.

There will be no difficulty in recognizing this species from the drawing of the wing.

Philygria calverti n. sp. (Plate X, fig. 2).

Opake; black, head and thorax cinereous variegated with black and brown spots. Abdomen black, segments 3-5 each with four white spots. Legs brown or black becoming yellow on tarsi. Wings infusate, with numerous clear white spots as in Figure 2. Arista long pectinate above. Mesonotum with two pairs dorso-central bristles.

Front with spot at base of verticals, an elongate band from cinereous ocellar tubercle to anterior orbits, brown. Broad facial and buccal orbits white; facial groove brown; median area ochreous to white below; lower occiput black. Antennae black with joint 3 yellow below. Mesonotum with rudiments of two approximated median more or less fused stripes, three pairs of large dorso-central spots, three lateral and one

notopleural spots, black or brown. Pleura black below with upper margin and longitudinal stripe over mesopleura cinereous. Scutellum black with basal angles cinereous. Halteres white with apex of knob infusate. Abdominal spots arranged in four longitudinal series, two on dorsum and one on each ventral lobe of dorsal plate; sometimes apical margins of these segments narrowly-cinereous, or the spots may be absent on most segments. Apices of femora, bases and apices of tibiae, and tarsi except apices, yellow.

Front convex, twice as broad as long. Face depressed above, as broad as length of third antennal joint, below strongly, obliquely projecting, with about 5 hair-like side bristles; facial prominence bare, shining, in profile with straight margin. Cheeks hardly more than half as wide as third antennal joint. Antennae with joint 3 subconical, straight on upper margin; arista with 8-9 hairs which are nearly as long as width of third.

Mesonotal setulae indiscernible except in post intra-alar series; no prescutellars, otherwise chaetotaxy normal. Abdominal marginal bristles proportionately long and suberect. Venation as in Figure 2. Length 1.5 mm.

Holotype.—♀, Alajuela, Costa Rica. Collected September 15, 1909, by sweeping at 3100 feet altitude by P. P. Calvert. In collection at Philadelphia Academy of Natural Sciences. No. 6064.

Paratypes.—1 ♂, Juan Viñas, Costa Rica, April, 1910, (P. P. Calvert); 1 ♂ 1 ♀, Asuncion, Villa Morra, Paraguay (Vezenyi).

Evidently belonging to the *picta* group which has long hairs on the arista and only two dorso-central bristles. It is my pleasure to name this pretty species in honor of my friend, Dr. Philip P. Calvert, who by careful collecting in Costa Rica has brought to light many new and interesting species of this family.

***Lytogaster pallipes* n. sp.**

Shining black, sparingly brown pruinose; antennae except above, palpi, and legs except femora sometimes infusate medianly, yellow; halteres whitish; face and cheeks sparingly cinereous, narrow orbits densely silvery; wings hyaline, yellowish, immaculate, with yellow veins.

Smooth, except abdomen sometimes faintly sculptured especially basally. Front 1.5 times as broad as long; orbitals small. Face half the width of vertex, twice as long as broad, with weak median tuberosity; upper orbits parallel; bristles minute. Cheeks as wide as third antennal joint; latter large, as broad as long; arista short-haired above.

Mesonotum with dorso-central setulae weak. Scutellum convex, rounded. Abdomen elongate, weakly arched, lateral margins rounded; sparsely minute brown pubescent; segment 2 weakly flattened dorsally; dorsal length of 4 more than total length of 1 to 3. Genital segments scarcely exerted. Wings with second costal section two-thirds as long as third; ultimate section of vein 4 two and one-half times as long as preceding. Length 1.7 mm.

Holotype.—♀?, Cachi, Costa Rica. Collected March 10, 1910, at stagnant pool near banks of Rio Reventazon by Dr. P. P. Calvert. In collection of Academy of Natural Sciences, Philadelphia. No. 6068.

Paratypes.—1 with same data; 14, Cartago, January to December; 2, Brook Toyogres near Tierra Blanca, April; 1, Bonnefil Farm, Rio Surubres, October; 1, Turrucares, December. All in Costa Rica.

Distinguished by its pale yellow legs and smooth mesonotum.

***Lytogaster granulosus* n. sp.**

Black, shining, sparingly brown pruinose; mesonotum and scutellum opaque; antennae except above, apices of palpi, legs except apices, tawny; halteres whitish, knobs blackish; face, cheeks and pleura sparingly cinereous, orbits densely white; wings hyaline, yellowish, immaculate.

Front twice as broad as long, weakly punctured, opaque orbits dilating anteriorly. Face one-third of the width of vertex, three times as long as broad; tubercle weak; cheeks slightly broader than third antennal joint. Antennae elongate; third joint twice as long as broad; arista short-haired above. Entire mesonotum densely, granularly sculptured; acrostical and dorso-central setulae discernible. Scutellum similarly sculptured, quadrate, flat. Pleura sculptured as front. Abdomen finely, closely pitted, becoming more shining laterally and apically; lateral margins rounded; venter hollow; segment 4 equalling 2 plus 3. Wing: Costa with third section 1.25 times as long as second. Length 1.7 mm.

Holotype.—♂? Near Guapiles, Costa Rica, June 4, 1909, 1100 feet altitude (P. P. Calvert). Collection at Academy of Natural Sciences, Philadelphia, No. 6067.

Paratypes.—Bonnefil Farm, Rio Surubres, 6, October; Cachi, 1, March; Banana River, 2, November; Juan Viñas, 1, June; all collected by Dr. P. P. Calvert, in Costa Rica.

Although the legs are entirely yellowish, they are darker, are more brownish than are those of *pallipes*, and the mesonotum is not shining.

Gastrops willistoni n. sp.

Shining to polished black, sparingly brown and gray pruinose; antennae except apex, clypeus, proboscis, tibiae, tarsi and wing veins, tawny; halteres, knobs black; wings yellowish-brown, immaculate. Narrow facial orbits densely pruinose; mesonotum subopake with two complete median vittae sometimes more or less coalescing, another laterad interrupted at suture and extending anteriorly along lateral margin to humeral angle, grayish; abdomen bluish-black with a semi-lateral polished bronze spot on segment 4.

Front depressed in middle, with two orbitals. Face two-thirds as wide as vertex, 1.5 times as long as wide; tuberosity above middle; lower slightly retreating part hardly as high as cheeks; five facial bristles with second from uppermost the longest and opposite middle of tuberosity. Clypeus distinct. Cheeks one-half of the height of head, with strong bristle. Third antennal joint twice as long as broad; arista with 12-14 hairs.

Mesonotal bristles strong, normal, scutellum flat, broadly truncate, with two elongate conical or cylindrical apical tubercles, each bearing long bristles; lateral bristles distinct.

Abdomen densely scrobiculate; segment 3 1.5 times as long as 2 and equalling 4; apical margins of all smooth. Legs clothed with long hairs, Hind tibiae more or less polished, swollen and flattened apically. Second costal section twice as long as third; vein 3 sinuate so that first posterior cell is narrowed apically. Length 4.0 mm.

Holotype.—♂ Chapada, Brazil. (H. H. Smith). In the collection at Academy of Natural Sciences, Philadelphia, No. 6066. Possessed through the kindness of Prof. S. W. Williston, the author of this genus, after whom I have the pleasure of naming this large and well marked species.

Paratype.—1 ♀, Bartica, British Guiana.

Allied to *niger* Will. in its immaculate wings with sinuate second vein, but the vittate, subopake mesonotum, the flat bituberculate scutellum and larger size will separate this species.

EXPLANATION OF PLATE X.

Fig. 1. *Philygria basalis*, wing.

Fig. 2. *Philygria calverti*, wing.

Fig. 3. *Ceromctopum mosilloides*, head in profile.

Fig. 4. *Psilephadra nemorosa*, head in profile.

Fig. 5. *Planinasus ambiguus*, head in full.

Fig. 6. *Planinasus ambiguus*, head in profile.

Fig. 7. *Planinasus ambiguus*, right antenna.